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ABSTRACT

The use of online interviews as reflective dialogue for professional growth and development was studied. Doctoral research conducted using electronic mail messaging as a series of online interviews evolved into reflective dialogues between the researcher and subjects. Five users of an online discussion group on teaching participated in a pilot study. Their initial responses reported on attitudes about children and learning, as they were asked, but they did not reveal their tacit attitudes. The researcher developed a revised interview protocol as a series of thematic questions. These resulted in professional growth on the part of the subjects, and growth of the doctoral student (researcher) in the use of conversational techniques to stimulate reflective conversation that resulted in a wealth of data. This study demonstrates the viability of online interviews as an educational research tool. It also shows the symbiotic relationship between a high degree of access to online computer technology and the culture of learning in which it exists. Two appendixes discuss developing a sample and present the interview protocol. (Contains 23 references.) (SLD)

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Online interviews: Research as a reflective dialogue

By

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Abstract

Doctoral research conducted using electronic mail messaging as a series of online interviews evolved into reflective dialogues between the researcher and subjects. These resulted in professional growth on the part of the subjects, and growth of a doctoral student as a researcher in the use of using conversational techniques to stimulate reflective conversation which resulted in a wealth of data. This study demonstrates the viability of online interviews as an educational research tool.

My journey towards becoming a researcher is rooted in my belief in experiential learning. Traveling through our lives we encounter things and undertake tasks from which we learn important lessons. One of the most powerful of learning experiences is the telling or description of experiences, and the lessons contained therein, because the reflection involved in telling leads one to further integrate the experience into one's own intuitive knowledge base (Iran-Nejad, 1994).

My research involves examining the impact that the classroom use of online computer technology has upon teaching and learning. I am concerned with two aspects of this problem. First is if access to online computer technology in the classroom engenders a change in teaching practice from more didactic methods to those that reflect a more constructivist belief in learning. Second is the an interest in learning which aspects of the structural or socio-cultural contexts of school (Cornbleth, 1990) interact to allow a high degree of access to online computer technology to be obtained.

Reflecting on the way in which this study came about I need to return to an experience which took place before I entered a doctoral program. I was teaching in an Ecuadorian high school when the first Internet connection was obtained. As the technology coordinator of the school it was my job to work closely with other faculty to encourage their use of this new medium. I was most successful with a colleague, a biology teacher with whom I shared a class of seniors. After introducing him to the use of the Internet, we agreed to combine our classes and teach them to use this new resource as a research tool. After training the students in the use of the Internet and introducing them to listserv discussion groups we met together and introduced our plan. The students

were to use electronic mail to participate in an online discussion about a biological issue of their choice. The students decided to join into a listserv discussion group that focused on new, emerging viruses. They first posted a question about the Dengue virus, a particularly virulent strain of which was very common in Ecuador. Their question started a discussion thread on the listserv in which the class eagerly joined. Each day, part of their biology class involved discussions of the current activity on the list and a planned response. Other time during the week was spent delving through resources to understand the discussion, conducting experiments to test ideas and raise questions, and exploring the Internet for new resources. Every day during the computer lab they monitored activity on the list, and every two or three days they added their own contribution to the discussion. In retrospect it was an outstanding example of self-directed student learning, within an interactive learning environment, using the Internet as a vehicle for online communication.

I look back on this experience with a great deal of pleasure. It was an opportunity to participate in an authentic learning experience. But it also raised a question: Would others using online computer technology in an educational manner have similar experiences? If so, what factors allow this sort of experience to develop? Save from visiting a great many schools, observing and talking with teachers, how would I ever find out?

I pursued these questions when I first came to the university. It seemed to me that the give and take of the online discussion we experienced was a form of conversation. Our own participation within the discussion group engendered wild, enthusiastic conversations in the classroom about the experience. Our entries into the discussion,

written by the students, were thoughtful, reflective contributions to the ongoing discussion thread. Online exchanges, in the form of electronic mail, when undertaken within the context of a reflective exchange of thoughts, can thus be characterized as conversation.

Reflection

These antecedents remained with me as I explored reflective thought. As educators, our consideration of reflective thought in education is rooted in Dewey (1933) who postulated a five step cycle of reflective thought based on the recognition of an initial problem, and concluding with the test of a hypothetical solution to the problem. Building upon the ideas of Dewey, Schon (1983, 1987) described two types of reflection still based upon the perception of an initial problem. In reflection-on-action one looks back upon an occurrence and examines what has happened and why. Reflection-in-action is a much more spontaneous recognition of a problem while it is occurring, relating it to one's intuitive knowledge of the situation (Iran-Nejad, 1994) to devise a solution. As an example of reflection-in-action Schon (1983) describes his efforts to ensure that a gate he was installing in a fence remained perpendicular. His solution to a perceived tilt was to install a diagonal brace to triangulate the corners, stabilizing and leveling the gate.

At it's essence, reflection is a biological process in which our brain integrates a troubling situation into our intuitive knowledge base (Heflich & Iran-Nejad, 1995; Iran-Nejad, 1994). One can conceptualize the brain as an organism which functions dynamically, responsible for the functioning of the many systems that allow us to live. The brain automatically directs the functions of our body and senses our environment,

without specific attention. In addition there is our mind, a function of the brain that directs our attention and our thoughts. Reflective thought is the interaction of what is sensed by our brain and recognized by our mind as being an anomaly based on our intuitive knowledge of a situation. Confronting this anomaly enables the mind to bring into focus our thematic understanding of the situation (Iran-Nejad, 1994). What we sense about the anomaly and what our mind realizes about it allows us to reorganize the theme in our mind to account of the anomaly, thus allowing us to recognize it in the future.

Reflective Conversation

Conversation among people is an exchange of information. At best it is an exchange of ideas that result from reflective thought. One can speak and listen reflectively, and in the process, construct a new understanding of the situation under discussion. Indeed when two or more people are involved in conversation the discussion may lead to the construction of as many different ideas of the content as there are people involved (Wiessglass, 1990).

Reflective conversation is an exchange of ideas in which the expression and receipt of ideas leads to the construction of new understanding of their own experience among the participants. Bamberger (1991) has described such an exchange as "conceptual chaining" (p. 45) in which ideas are articulated, exchanged, recreated and re-exchanged as they move from person to person in a conversation. The reflective aspect of such a chain is the way in which individuals capture the ideas that re seemingly forming in the air and construct their own meaning from them as the reflectively integrate them with previously held knowledge.

Feldman (1995, 1996) has described the use of conversation as a research tool in the teaching of action research courses. Conversation for Feldman (1995) counts as a reflective meaning-making process because it represents an exchange of ideas which lead to understanding. Conversations can become a tool for critical inquiry when the goal of the conversational exchange is to share and develop knowledge and promote understanding among the participants.

What actually occurs when we are engaged in reflective thought is building upon previously held knowledge, knowledge that is both tacit and held intuitively. This is the same knowledge that Iran-Nejad (1994) has termed the Intuitive Knowledge Base or IKB. Our IKB is known, but not necessarily held consciously in our minds. When confronted with a dilemma or when we are involved in a conversation, our mind is focused on the problem at hand and has not yet called upon our IKB. Reflection or meaning-making occurs when the conversation raises a question to which our mind actively directs our IKB which is otherwise dynamically stimulated by our senses and the other ongoing functions of our brain. When we focus our IKB on a problem, actively, or when it is stimulated dynamically in the midst of conversation, it either explains the dichotomy or question raised in conversation, or it leads us to unconsciously reorganize our IKB, leading to new understanding.

Reflective thought has long been considered an important aspect of professional growth. Argyris and Schon (1974) identified the contradiction between one's espoused theory, one's expressed beliefs, and one's theory-in-use, beliefs made evident by one's activities. Growth for Argyris and Schon (1974) was recognizing the dissonance between one's espoused theory and theory-in-use, and taking personal steps to align them. These

ideas have been of central importance to Argyris (Argyris, Putnam & Smith, 1985) and Schon (1983, 1987, 1991) in their work in individual and organization development. Osterman and Kemp (1993) discuss the role of inquiry as an element of professional growth. It is inquiry, among individuals, that helps expose the contradictions between beliefs and practices of teachers. Feldman, et al. (1996) argue that teachers in a reflective stance examine their own practice exposing and questioning tacit assumptions about their teaching. This allows them to reflectively evaluate past practices and seek alternatives.

Conversation offers us an opportunity to reflect-on-action, as it allows us to discuss and process into our IKB things that have previously occurred. It can also involve reflection-in-action as we dynamically engage in conceptual chaining (Bamberger, 1991) in the midst of an ongoing dialogue. In either case, conversation serves as a vehicle for stimulating reflective thought and may lead to both personal and professional growth.

A Pilot Study

The first problem I confronted in conducting my research was developing a sample. My sample came from the universe of users of online discussions groups. They were found by posting notices on various listservs about the impending study and inviting interested users of the list to contact me to discuss the study. Forty-six people inquired about the survey, and twenty-five eventually agreed to participate. A copy of the notice posted to develop a sample is included as Appendix A. A list of the participants by alias, type of school and locale appears in Table 1.

I developed a set of questions to use as an interview protocol and sought to test it on some members of my sample. Five of the twenty-five subjects agreed to participate in a pilot study that was run during November, 1995. While the methodology of sending and receiving electronic mail messages proved sound, the quality of the information received was less than I had hoped. The subjects reported their attitudes and ideas, but these did not reveal their tacit attitudes about children and learning; things that I may have been able to deduce had I conducted an ethnographic study of various classrooms.

This dilemma led me into reflective conversations about the problem with my advisor, my graduate student colleagues, and the subjects of the pilot study. These enabled me to recognize that I was seeking a reflective dialogue with my subjects. If reflective thought is largely thematic (Heflich & Iran-Nejad, 1995), then the questions to be addressed to the subjects had to themselves be thematic. In addition, the exchanges of questions and answers needed to assume a more conversational tone.

I set about revising the interview protocol into a series of thematic questions. Each of these included a group of specific questions which, taken together, represented a theme. These were designed to simulate a conversation, as if we were sitting across the table from one another, sipping a cup of tea, engrossed in conversation, rather than being separated by thousands of miles. Fifteen thematic questions dealing with topics as diverse as the quantity and types of computers available, relationships among the teachers and administrators, descriptions of typical classroom days became the protocol which formed the framework of my research gathering technique. A copy of the interview protocol, the fifteen thematic questions, and the research questions to which they relate is included as Appendix B.

Reflective Dialogue

I began to conduct my interviews in February, 1996 and quickly realized how much of a dialogue the interview process had become. Not only were the thematic questions leading to reflective responses, but the responses themselves begged for further questions or commentary which became woven into the fabric of the interview. Through these discussions I came to learn about the day to day life in each of the classrooms, and, additionally, some profoundly held beliefs, hopes and fears about the effect technology was having on the conceptions of learning held by my subjects and the culture in which it occurred.

Perhaps the most significant finding of my research was the symbiotic relationship between a high degree of access to online computer technology and the culture of learning in which it exists. Where a high degree of access was present teachers exhibited a greater belief in constructivism and allowed more self-directed student learning to occur in their classrooms than did teachers for whom access to online technology was more difficult. What is not yet clear is the extent to which online technology led to a change in the culture of school, or the culture of school led to a high degree of access to online technology. This question of causality remains to be answered.

The dilemma that confronted me when analyzing the data was the extent to which my participation in the dialogue shaped the content of the data. I was as much a participant in this study as were my subjects. The nature of my participation and the question of my influence upon the outcome became a major concern during the data analysis. I tracked my own contributions to the dialogue throughout the transcripts and

found that they fell into three broad areas. The first, what I call my encouraging mode, includes efforts to urge the subjects to continue along a conversational thread and validating their responses as honest expressions of their experiences. My supportive comments were often expressed in regard to their stories of problems encountered during their lives in the classroom. My inquiry comments sought further elaboration of specific aspects of their response. In reflecting on the reasons for these comments and the role they played in the interview I realize that they serve to make the interviews conversational by establishing a human presence in the exchange of messages. Harasim (1993) has described online technology used as computer-mediated communications as overcoming bounds of space and time. Yet close proximity is one of the more important elements of conversation, contributing presence and context that is missing in online messages. Rather than corrupting the data, my comments led to a more fluid dialogue which likely encouraged more reflective responses.

Professional Growth

Online interviews as reflective dialogue are a vehicle for professional growth and development (Schrum 1992). Studies on the impact that online communication have had on teaching and learning all conclude that teachers report the positive effects of having professional discussions with other educators participating in online projects (Heflich, 1996; Fowler & Wheeler, 1995; Harasim, 1993a; Riel, 1990, 1993). Indeed this is often one of the most significant findings and it remains so here.

The participants in this study uniformly praised it as an opportunity for professional growth. They particularly spoke about the ways in which it offered them an opportunity to reflect upon their own practice.

> *I have learned something about myself during this project. Many times when I didn't realize that I had an opinion or thoughts about a particular topic, and I began to write to you, I found that I really did have knowledge and feelings on the topic. I'll have to give this some thought, and consider the implications for my classroom.*

Some participants felt energized by our interactions and expressed a desire to confront the dichotomies in their own working environments.

> *The technology question is prominent in my school right now and this has given me an opportunity to sort through my thoughts on the issues. The administration continues to invest in hardware and software, but not consider the need for training and staff development. These are things that need to change.*

Others began to think more critically about the impact of technology and looked at their own responsibilities towards preparing students to cope with such an enormous information resource.

> *I am concerned about the isolation that computer use often entails. It does not seem to me, as I watch my classes work, that the use of online technology has fostered working together. I am concerned that much that has been developed in terms of authority systems over the past 100 years (selection media, reviewing for library materials, refereeing for academic journals, and the like) does not lend itself to a system of universal access and information such as the Internet. Obviously this has its good side but don't see as much emphasis on teaching students to evaluate the information they get as I do on teaching them to "access" it. I'm concerned, too, about the emphasis on the picture over the word. The web is more popular than gophers because of the ability to use pictures, etc., but I find it much slower, actually, as an information source. But I read. My students look at the pictures and move on. It's almost impossible for me to imagine the future of education, technology changes so fast and we are obviously just at the beginning of on- line tool development and on-line information systems.*

In addition, other participants simply enjoyed the opportunity to talk about their situations with someone who was interested in what they had to say.

> *This has been an extraordinary experience for me. I've begun to think about issues here in a new way. Your questions freed me to think about my experiences in the classroom, and reflect on the way that technology was being used here. I*

hope these ideas I'm having now are things I'll be able to implement in my classroom.

All participants evaluated their participation in the online interviews and all expressed the belief that they had learned as a result of our reflective dialogue.

Online interviews offer the same opportunities for professional conversation as the staff room, the car pool, the telephone, and the staff development session. In such sessions educators have the ability to reflect-on-Action (Schon, 1983) and reorganize their intuitive knowledge base (Iran-Nejad, 1994) to accommodate the incongruities in their practice. Online interviews stimulate reflective thought by offering individuals space which they can fill with reflective dialogue that can stimulate self-inquiry (Osterman & Kemp, 1993). As such, they are a vehicle for the professional development of educators.

Conclusion: The dialectic nature of online research

There is a dialectic relationship between the growth of understanding of the researcher and the professional growth of the subject in an online interview. The personal and professional growth of the subjects is documented in their comments.

I've enjoyed this survey too-it has been good to crystallize my own thoughts on this online scene. Miriam, High Access

The technology question is prominent in my school right now and this has given me an opportunity to sort through my thoughts on the issues. Sam, Low Access

This has been a pleasure - it is good to have to think once in a while about larger issues. Thanks for the opportunity to keep thinking. Juanita, Low Access

I learned also; self reflection is always good. This has forced me to look at one I'm doing with my classroom.

I have enjoyed answering your questions. They generated much thought and introspection.

> *I've changed so much during these conversations. You've been getting information from me, but I've been getting it from you, too! I can't wait to see what you come up with.*

My own growth as a research is rooted as well in the dialogues and my growing understanding of how to effectively contribute in ways that stimulated the reflective conversation. Their positive view of the interview would not have been possible without my comments, and my comments would not have succeeded in stimulating conversation if their reflective responses to the thematic questions did not engage me in the stories they were telling.

This research has demonstrated that online interviews are a viable means of conducting educational research. The absence of non-verbal cues in the use of electronic mail places a stronger emphasis on the content of messages to convey meaning and sentiment than occurs in face-to-face communication. Text-based messages mask expression, as well as information about gender, ethnicity, and social status (Harasim, 1990). Thus, the researcher needs to become very expressive and explicit when engaging in correspondence. The use of clustered questions organized into topical themes (see Appendix B), along with conversational comments and questions about the previous response, were sent to each participant. This enabled them to develop a mental picture of the person with whom they were communicating and engendered a reflective conversation.

Online interviews and the reflective conversations to which they can lead are a useful new research methodology. Their viability is threatened only by the ongoing growth of video conferencing technology. The ability to converse with someone visually

while online is enticing, but it may limit the conversational art of the interview necessitated by text-only transmissions.

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APPENDIX A

DEVELOPING A SAMPLE

This is a reproduction of an email message posted on various educational listserv discussion groups in March and September, 1995. The groups contacted included Edtech, Ednet, Kidsphere, ECIS, OASIS, ISED-L and K12ADMIN. The text of the letter is below.

"I'm in the process of designing a study of schools that are connected to online resources. I'm particularly interested in schools that use online technologies in an educational context, embedded in the curriculum, as opposed to having computers isolated and taught as a separate subject. If you think your school might be able to make a contribution, or if you'd like more information, please contact me. Thanks."

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APPENDIX B

Interview Question Protocol

Interviews will be conducted online, via email exchanges between researcher and subjects. It will be designed to address the research questions:

1, Are teachers who use online computer technology in their classroom in technology rich schools more likely to exhibit the practices of a constructivist teacher, than those who are isolated users of computer technology in their classrooms?

2, Which structural or sociocultural elements of school support the use of online computer technology in a constructivist manner?

The interviews will be unstructured, allowing for more contextual richness in the answers. The path of questions outlined below is better characterized as a topical guide than an actual interview protocol. Together they represent a direction to be followed during the course of the interview, allowing for digressions based upon responses of the subjects.

1, Larry Cuban (1995) has characterized the use of online computer technology in the schools as a "small cadre of determined users among a large majority of casual or non-users". Does this accurately describe the situation at your school, or would you characterize your school differently?

2, Were you working at the school when the decision to invest in online computer resources was made? If so, how was the decision made? Who was involved in the decision making from the school, from the district? Was there an outside entity involved? If so, who, what and what role did they play?

3, How were you trained to use online computer resources? Was it part of a school or district-wide training? If so, describe the outlines of the training? What access to online computers did you have while you were learning? What sort of technical support did you have? Do you still have technical support? Who provides it and what does it involve?

4, How wide-spread is the use of online computer resources in your school? Where are the computers located, in the classrooms, in a laboratory, in the library, in the administrative offices? If there is laboratory, how is it used? If there are computers in the library, how are they used? What percentage of the computers in school are online?

5, Who has direct access to online computers? Do you have access, is it unlimited? Do your students have access? What kind of restrictions are placed on student access? What are the concerns are the basis for these restrictions?

6, Lets discuss what your classroom is like. Please describe a typical session with your students. How are your students arranged? Are they in a whole group, or smaller groups? How are you interacting with them? Are you involved in direct instruction, What are your students doing? What do you expect them to accomplish? How will you assess their work?

7, Using the model of the previous question as a basis, please describe a very good session with your students. How are they arranged? What are they doing? How are you interacting with them? What do you expect them to accomplish? How will you assess their work? Why is this class a good one for you?

8, Now let's talk about what you perceive of as a poor classroom experience. How are your students arranged? What are they doing? How are you interacting with

them? What do you expect them to accomplish? How will you assess their work? Why is this class a poor one for you?

9, How would you characterize yourself as a teacher? How would you characterize your students? In what way do you see your relationship to them as their teacher? How does that manifest itself in terms of your practice?

10, Let's talk about the information available to your students on the network, how would you compare it to materials available in other media such as books, films, tapes: How would you describe your curricular use of the network: How is the information taken from the network used by students, by yourself: Describe some of the products that result from work that is done on the network: Contrast with other work the students do.

11, What role do the school and district administration play in the use of online computer technology in your school? Are they supportive of its use? In what way? Do they deter it? How so?

12, Do your colleagues use online technology? Do they use it with their students? Do they support the use of it in the school? How do they do so? Do they act to deter it? In what way?

13, What is the role of parents in your school culture? Do they have an active relationship with you as the teacher of their children? What do parents have to say about they use of online technology in your classroom, in the school? Are they supportive of it? In what way? Do they seek to limit or deter it's use? How so?

14, What do you see as the future of education when you consider the impact of online technology? What sort of impact will it have on teaching and learning? What will

be the role of a teacher? What will the life of a student involve? How will these represent a change from what exists today?

15, Finally, in your mind, what is the most outstanding benefit of having online technology available in your school and what is the most serious drawback of using it in school?

Table 1. The aliases, level of school, school type, and locale of the sample

Alias	Level of School	Type of School	Locale
Lani	Elementary	Public	Urban, South East
Joy	Elementary	Public	Rural, West Coast
Anna	Elementary	Public	Rural, Mid West
Sam	Elementary	Public	Rural, West Coast
Liz	Elementary	Public	Urban, Mid West
Sandy	Elementary	Public	Urban, South West
Andrew	Elementary	Public	Urban, North West
Sunny	Elementary	Public	Urban, Hawaii
Max	Elementary	Private	International
Toni	Middle	Public	Rural, Mid West
Rita	Middle	Public	Rural, North East
Terry	Middle	Public	Rural, South East
Paul	Middle	Private	Urban, Mid West
Juanita	Middle	Private	Urban, North East
Deb	Middle	Private	Urban, Mid Atlantic
Carol	Middle	Private	Urban, Mid Atlantic
Lisa	High School	Public	Urban, North West
Rick	High School	Private	International
Thad	High School	Public	Urban, Mid West
Phyllis	High School	Public	Urban, Mid Atlantic
Ralph	High School	Private	International
Lilly	High School	Private	Urban, West Coast
Miriam	High School	Private	Rural, Mid Atlantic
Tip	High School	Private	Urban, North East
Elsie	High School	Public	Urban, Hawaii